



FACT SHEET

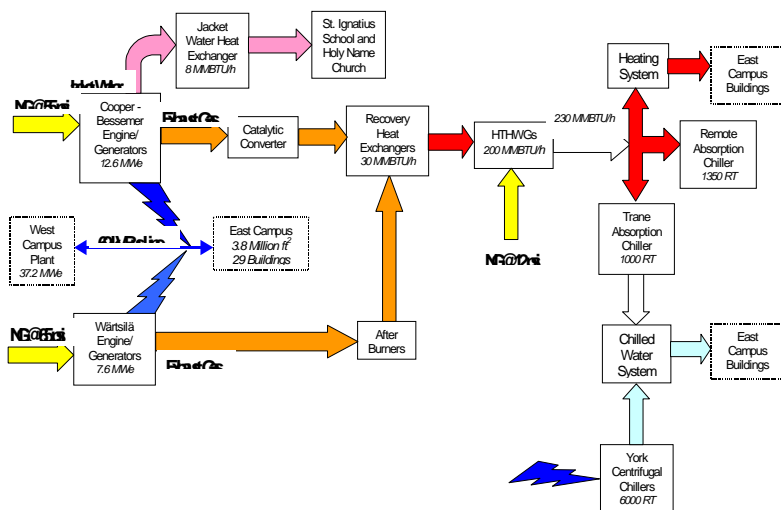
University of Illinois at Chicago Cooling, Heating, and Power Facility (CHP)

Site Description

The East Campus CHP Facility at the University of Illinois at Chicago provides 20.2 MW_e; enough to meet the electrical demand of the entire East Campus. The recovered heat from the generation of that electricity supplies 38 MMBTU/h to offset the heating and cooling requirements of more than 3.8 million square feet in 29 campus buildings. Early in 2002, a second plant began operation on the West campus that provides an additional 37.2 MW_e and offset the heating and steam demands of the several hospitals and other buildings on the West Campus. Ultimately the University will operate the total 57.4 MW_e system as a single plant providing service to the entire University's 8 million square feet and a student population of over 27,000.

Cooling, Heating, and Power for Buildings (BCHP) Configuration

East Campus CHP System



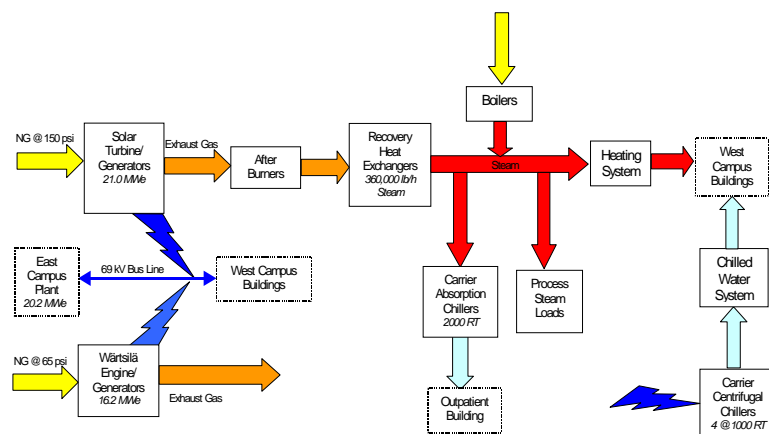
Original 12.6 MW East Campus Plant (1993)

Total Cost:	\$15M
Original Goal:	Payback in 10 years
Actual Performance:	Payback in 7.5 years
Operating Savings:	Approximately \$2M/yr

Additional 7.6 MW East Campus Plant

[Includes 1000 Ton Absorption Chiller] (2000)	
Total Cost:	\$10.7M
Original Goal:	Designed for a payback of 10 years
Actual Performance:	First full year of operation will be 2001
Operating Savings:	Year 2000 – \$1.9M savings even with all time high gas prices.

West Campus CHP System



New 37.2 MW West Campus Plant (Late 2001)

Total Cost:	\$38M
Original Goal:	Designed for a payback of 7 years
Actual Performance:	First full year of operation will be 2002
Operating Savings:	Estimated annual savings of \$7M

Energy/Financial Statistics

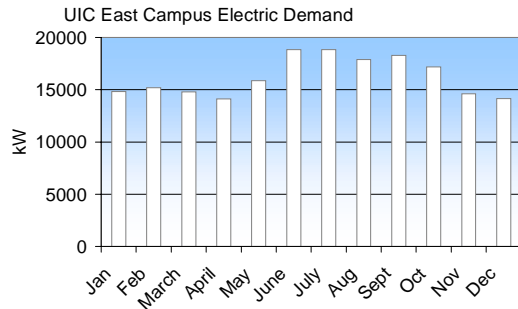


Figure 1: Monthly Electric Demand

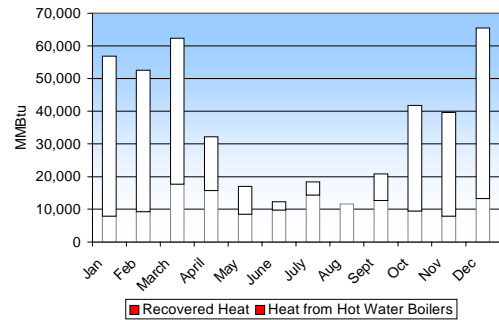


Figure 2: Annual Energy Provided

	BCHP Plant	Baseline
INCOME		
Sold electricity	\$ 136,858	N/A
St Ignatius School	\$ 70,827	N/A
GENERAL EXPENSES		
Salaries	\$ 204,619	\$ 204,619
ELECTRICAL EXPENSES		
Electricity Wages	\$ 481,400	N/A
Electricity Fuel Oil	\$ 177,477	N/A
Electricity Gas	\$ 3,804,883	N/A
CommEd Electricity	\$ 1,131,845	\$ 6,710,545
Electricity Water/Sewer (a)	\$ 57,723	N/A
Maintenance	\$ 120,000	N/A
HEATING & COOLING EXPENSES		
Heating & Cooling Wages	\$ 886,600	\$ 886,600
Heating & Cooling Fuel Oil	\$ -	\$ -
Heating & Cooling Gas	\$ 1,674,764	\$ 2,462,380
Heating & Cooling Water/Sewer (b)	\$ 52,437	\$ 52,437
Maintenance	\$ 58,200	\$ 58,200
TOTAL	\$ 8,443,263	\$ 10,374,782

Financial Comparison Baseline and BCHP Plant

Additional Considerations

Taking into consideration replacement of electricity and recovered thermal energy, the CHP facility provides an overall source energy reduction of 14.15% (236,856 MMBTU/y). The CHP system also represents an estimated 28.5% (29,545 tons/y) reduction in CO₂, a 52.8% (126 tons/yr) reduction in NO_x, and an 89.1% (551 tons/y) reduction in SO₂.

This project was totally financed by the University with no federal, state, or utility subsidies.

Based on total costs, CHP provides an estimated savings of \$1,931,518, which correlates to a 18.62% savings for the year 2000. However, these savings are lower than experienced in previous years because natural gas costs during several of the months of 2000 were uncharacteristically high. The estimated savings based on various gas prices are provided below.

Natural Gas Average Price [\$/MMBTU]	Savings	
2.5	36.18%	\$3,349,512
3.0	31.80%	\$3,029,657
3.5	27.66%	\$2,709,802
4.0	23.74%	\$2,389,947
4.5	20.03%	\$2,070,093
4.68	18.62%	\$1,931,518
5.0	16.50%	\$1,750,238

Savings for Various Natural Gas Average Prices



Visit us on the web at
www.CHPCenterMW.org

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